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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,163	03/10/2004	Frederick Hayes Dill	HIT1P009/SJ0920020044US1	5120

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EXAMINER	
KLIMOWICZ, WILLIAM JOSEPH	
ART UNIT	PAPER NUMBER
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,163	DILL ET AL.	
	Examiner	Art Unit	
	William J. Klimowicz	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Status

Claims 1-29 have been voluntarily cancelled by the Applicant.

Claims 30-60 are currently pending.

Specification

The disclosure is objected to because of the following informalities:

With regard to page 13 (line 11) of the Applicant's specification, the phrase "etch stop/adhesion layer 506" should be changed to the phrase -- CMP stop/adhesion layer 506-- in order to remain consistent with the Applicant's specification

Appropriate correction is required.

Claim Objections

Claims 43 and 49 are objected to because of the following informalities:

With regard to claim 43 (line 2), the phrase "pole tip layer" should be changed to the word --pole-- in order to remain consistent with preceding claim language.

Similarly, with regard to claim 49 (line 4), the phrase "pole tip" should be changed to the word --pole-- in order to remain consistent with preceding claim language.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 30-60 are rejected under 35 U.S.C. 102(e) as being anticipated by Hashimoto et al. (US 6,564,445 B1).

As per claim 30, Hashimoto et al. (US 6,564,445 B1) discloses a magnetic head, comprising: an etch stop layer (e.g., insulative layer (12), at which the anisotropic etching performed on layers deposited above layer (12) is stopped - see, *inter alia*, COL. 18, lines 16-25); a transfer layer (e.g., 13A) positioned above the etch stop layer (12) with a trench formed therein (e.g., see FIG. 24B), walls of the trench (13T) tapering together towards the etch stop layer (12); a pole tip layer (15) situated in the trench (13T) to define a pole tip structure flanked at least in part by the transfer layer (13A) - Figure 24C; wherein at least one of an upper surface and a lower surface of at least one of the etch stop layer (12) and the transfer layer (13A) remains in co-planar relationship with at least one of an upper surface and a lower surface of the pole tip structure (15) (e.g., see FIG. 29A).

As per claim 31, Hashimoto et al. (US 6,564,445 B1) additionally discloses a magnetic head, comprising: an etch stop layer (120; and a pole (15) situated on top of the etch stop layer (12), walls of the pole (15) tapering together towards the etch stop layer (12); wherein at least one of an upper surface and a lower surface of the etch stop layer (12) remains in co-planar

relationship with at least one of an upper surface and a lower surface of the pole (15) - e.g., see Figure 29A.

Additionally, as per claim 32, a disk drive system (150) is provided - see, e.g., FIG. 40, comprising: a magnetic recording disk (200), associated with a rotary actuator (155); a magnetic head (153) including: an etch stop layer (12), and a pole (15) situated on top of the etch stop layer (12), walls of the pole (15) tapering together towards the etch stop layer (12) (FIG. 29A), wherein at least one of an upper surface and a lower surface of the etch stop layer (12) remains in co-planar relationship with at least one of an upper surface and a lower surface of the pole (15); an actuator (155) for moving the magnetic head (153) across the magnetic recording disk (200) so the magnetic head may access different regions of the magnetic recording disk; and a controller (inherently provided in order to retrieve information from, and deliver information to said head) electrically coupled to the magnetic head (153).

Additionally, as per claim 33, a disk drive system is provided (the aforementioned actuator, disk, head), comprising: a magnetic recording disk (200); a magnetic head (153) including: an etch stop layer (12), a transfer layer (13A) positioned above the etch stop layer (12) with a trench (13T) formed therein, walls of the trench (13T) tapering towards the etch stop layer (12), and a pole tip layer (15) situated in the trench (13T) to define a pole tip structure (15) flanked at least in part by the transfer layer (13A), wherein at least one of an upper surface and a lower surface of at least one of the etch stop layer (12) and the transfer layer (13A) remains in co-planar relationship with at least one of an upper surface and a lower surface of the pole tip structure (15) - e.g., see FIG. 29A.

As per claim 34, wherein the etch stop layer (12) includes a, non-magnetic material (e.g., see, *inter alia*, COL. 8, lines 23-26).

As per claim 35, wherein the etch stop layer (12) includes an insulator (e.g., see, *inter alia*, COL. 8, lines 23-26).

As per claims 36, 37, 43, 47, 55, 56, 57, 58, 59 and 60, the product by process limitations in these claims (e.g., "wherein the etch stop layer is deposited utilizing a sputtering operation" (claim 36); "wherein a planarization operation is performed on the etch stop layer" (claim 37); "wherein a planarization operation is performed on the pole tip layer" (claim 43); "wherein the pole tip layer is deposited utilizing at least one of ion beam deposition, sputtering, and electroplating" (claim 47); "wherein a planarization operation is performed on the capping layer" (claim 55); "wherein the capping layer remains over the pole tip structure after the planarization operation" (claim 56) - note that layer (M) is flat); "wherein a reactive ion etching operation is performed to remove the planarization stop layer surrounding the pole tip structure" (claim 57); "wherein another planarization operation is performed on a remaining portion of the pole tip layer surrounding the pole tip structure" (claim 58); "wherein another reactive ion etching operation is performed on a remaining portion of the planarization stop layer situated above the pole tip structure" (claim 59); "wherein a planarization operation is performed on a remaining portion of the pole tip layer situated above the transfer layer" (claim 60)) are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17(footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessman*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In*

re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process limitations or steps, which must be determined in a "product by process" claim, and not the patentability of the process limitations. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

As per claim 38, further comprising a transfer layer (13A) positioned above the etch stop (12) layer with a trench (13T) formed therein, wherein the transfer layer (13A) includes a material capable of being ion-etched (e.g., see, *inter alia*, COL. 17, lines 11-20).

As per claims 39 and 50, further comprising a transfer layer (13A) positioned above the etch stop layer (12) with a trench (13T) formed therein, wherein an adhesion layer (IM, which is stuck on top of layer (13A) is deposited above the transfer layer (13A).

As per claims 40 and 51, wherein the adhesion layer (IM) includes a material selected from the group consisting of Si, Ta, Cr, and Ti (e.g., see, *inter alia*, COL. 17, lines 52-53).

As per claims 41 and 52, wherein a planarization stop layer (e.g., flat layered surface (13B) as seen, for example, in Figure 29A, which is capable of being planarized in a method step, and then the planarization of the layer can be stopped- *keep in mind that this is a product being claimed*) is deposited above the adhesion layer (IM).

As per claims 42 and 53, wherein the planarization stop layer (13B) includes a material selected from the group consisting of C, SiNx, Ta, and Ti (e.g., see, *inter alia*, COL. 17, lines 15-18).

As per claim 44, wherein a transfer layer (e.g., M2 as seen in FIG. 29A) is deposited above the planarization stop layer (13B).

As per claim 45, wherein the pole tip layer (15) includes a ferromagnetic material (magnetic material).

As per claim 46, wherein the pole tip layer (15) includes a material selected from the group consisting of NiFe and CoFe (e.g., see, *inter alia*, COL. 8, lines 54-56 and COL. 7, lines 49-52).

As per claim 48, wherein an upper surface of the pole tip layer (15) is located above a plane of the upper surface of the transfer layer (13A) (e.g., see FIG. 27C).

As per claim 49, further comprising a transfer layer (13A) positioned above the etch stop layer (12) with a trench (13T) formed therein, wherein the upper surface of the pole tip (15) is located above a plane of the upper surface of the transfer layer (13A) - (FIG. 27C).

As per claim 54, wherein a capping layer (e.g., layer (M)) is deposited above the planarization stop layer (13B).

Response to Arguments

Applicant's arguments with respect to the pending rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (571) 272-7577. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

William J. Klimowicz
Primary Examiner
Art Unit 2627

WJK